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(54) Message deposit alerting apparatus for messaging sytems

(57) A messaging system such as a voice-mail system (VMS) 10 is associated with apparatus for alerting subscribers to the presence of messages deposited in the VMS 10, by means of teletext messages displayed on teletext video receivers 20. A number of such receivers 20 is distributed within a closed area, and each receiver 20 (or group of receivers) displays a particular page generated by a teletext inserter 16 responding to information from the VMS 10. The specific page (and hence specific receiver) for each alert is assigned so that the alert is shown on the receiver 20 most visible to the subscriber being alerted. This information is held by an inserter controller 14, and can be altered if the subscriber moves to another location. Urgent alerts can be shown on a number of different pages so that more or even all receivers 20 show the urgent alert. The alerting apparatus can be applied to other messaging systems, such as video mail, fax mail or E-mail systems.

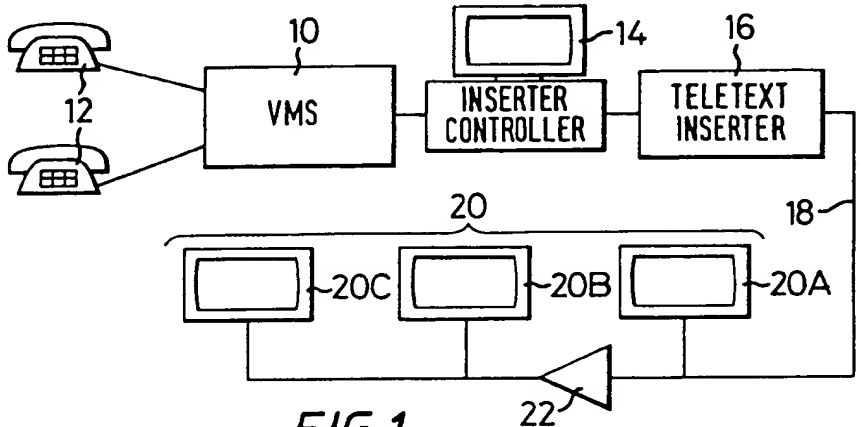

FIG. 1

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

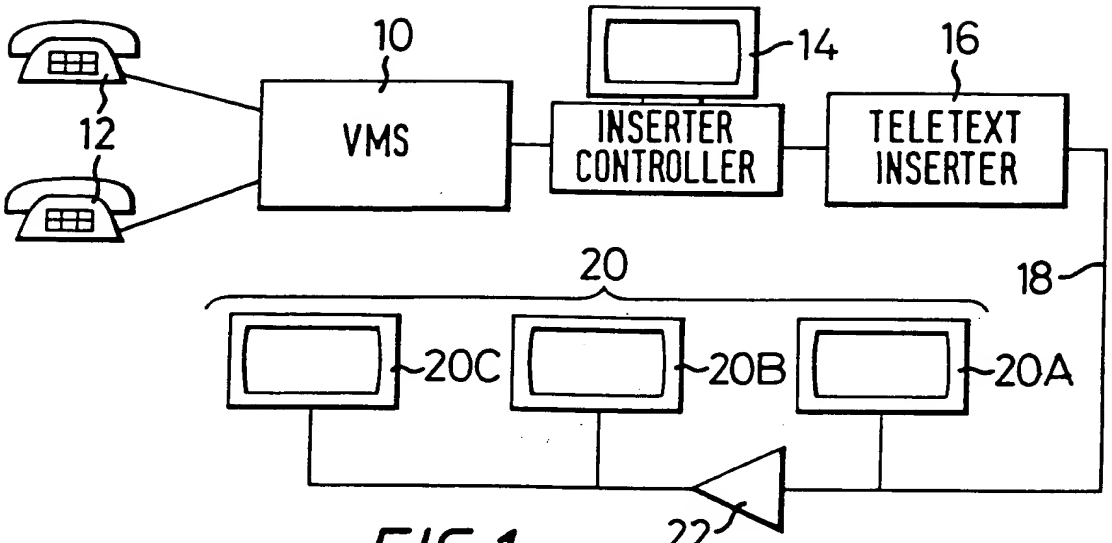
10
14
16
12
VMS
INSERTER CONTROLLER
TELETEXT INSERTER
20
18
20C
20B
20A
22

FIG. 1

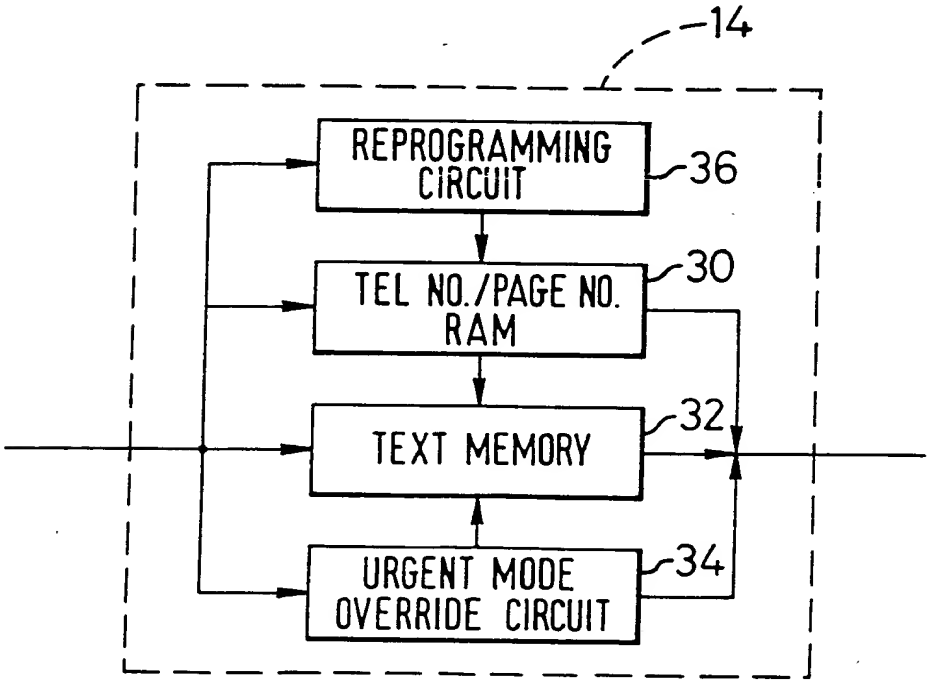
14
REPROGRAMMING CIRCUIT
36
TEL NO./PAGE NO. RAM
30
TEXT MEMORY
32
URGENT MODE OVERRIDE CIRCUIT
34

FIG. 2

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MESSAGE DEPOSIT ALERTING APPARATUS FOR MESSAGING SYSTEMS

This invention relates to messaging systems, that is systems in which telephone callers can leave messages, such as voice messages, video mail, fax mail or E-mail, for a selected one of a number of subscribers, and in which that selected subscriber can subsequently retrieve the message(s) deposited for the subscriber. In particular, the invention relates to an apparatus for alerting the subscriber that a message has been deposited.

In messaging systems such as voice-mail systems, there are a number of existing methods by which a subscriber can be alerted that he has one or more messages in his voice mailbox. In one method, the voice-mail system is arranged to dial out (via a modem) to a paging bureau when a caller leaves a message. The subscriber receives an alert on his paging receiver whereupon he can dial into the system and receive his voice message. Subsequent paging signals may be initiated if the subscriber does not retrieve the voice message within a certain time. A disadvantage with this system is that each subscriber must carry a paging receiver which can be inconvenient and is relatively expensive. In another method, the subscriber can hear a stuttered dial tone when lifting his telephone receiver, indicating that a voice message has been deposited. The stuttered tone can come from a local private automatic branch exchange (PABX) or from the public switched telephone network (PSTN). The disadvantage of this technique is that the subscriber is alerted to the presence of a deposited voice message only when he lifts the telephone receiver; there may thus be a long delay before message retrieval. An alternative to this is the provision of a message light on the subscriber's telephone. This can be provided for a closed user group within a PABX system, such as in hotels. However, this technique requires the provision of special telephone extensions (equipped with message lights) and special wiring/connection facilities. A further method provides for the voice-mail system to dial out to the subscriber's nominated phone and deliver the voice message. However, if there is no reply from the subscriber's phone, procedures such as timed follow-up calls need to be initiated, which can tie up the operation of the system.

The present invention provides a message deposit alerting

apparatus for a messaging system, the apparatus comprising:

control means for receiving from the messaging system an indication that a message has been deposited for a particular one of a number of subscribers to the system; and

means for directing a teletext signal to a particular one or particular group of teletext receivers in response to the control means, the particular teletext receiver or group of receivers being selected on the basis of preprogrammed information in the control means associating subscribers with corresponding teletext receivers or groups thereof, whereby a subscriber can be alerted to the presence of a message deposited in the messaging system by means of the subscriber's associated teletext receiver or group of receivers.

In a preferred embodiment of the invention, to be described in greater detail below, standard teletext television screens can be used within a closed area to alert subscribers to messages or callers wishing to talk to the subscribers. Each television screen displays a particular teletext page generated by a teletext inserter responding to information from the messaging unit, typically a voice-mail unit. The use of standard teletext-equipped television receivers provides a convenient, inexpensive and easily-installable solution to message deposit alerting, for example in voice-mail applications.

The invention will now be described by way of example with reference to the accompanying drawings, throughout which like parts are referred to by like references, and in which:

Figure 1 is a block diagram showing a voice-mail system provided with message deposit alerting according to an embodiment of the invention; and

Figure 2 is a more detailed diagram of one implementation of part of the system shown in Figure 1.

Referring to Figure 1 of the drawings, there is shown a preferred system configuration which includes a voice-mail system (VMS) 10 connected to telephones 12 and to an inserter controller 14. The telephones 12 may be connected to the VMS 10 either directly, or through a PABX, or can be normal subscriber telephones connected to the VMS 10 via the public switched telephone network (PSTN).

The inserter controller 14 is connected to the teletext inserter 16 which is a standard device for providing teletext signals in a

conventional UHF video format. The teletext inserter 16 sends teletext signals (including a number of different teletext pages) over a line 18 which is connected to a number of monitors, such as standard television receivers 20 having the ability to receive teletext, so as to distribute the teletext signals about the premises. If necessary, one or more UHF amplifiers 22 can be provided in the line 18 for long cable runs and also for a large number of receivers 20.

Each television receiver 20 is located in a separate department or room, and has its teletext screen on a particular page displaying information for the subscribers who normally have visibility of the screen; the receivers are designated 20A, 20B, 20C so as to indicate that different messages will be displayed in general. In certain areas, one television receiver 20 will be sufficient for a given group; in other situations, a number of television receivers 20 showing the same page may need to be provided. If a message is left for a particular subscriber, then his screen will alert him, for example by flashing his name on the screen or changing the screen background colour. Once alerted, the subscriber telephones the VMS 10 and enters his identification code. The screen nearest the phone being used may then display more information on the messages which have been deposited, such as:

(i) the number of messages,

(ii) the length of the messages,

(iii) the date and time of message deposit, and

(iv) the name of the caller, if in a closed user group (derived from that caller's identification number or extension number).

The system in the configuration described above can only alert a subscriber when he returns to his desk or area. However, the system can also be used in an urgent mode to find subscribers for particularly urgent messages or callers who wanted the subscriber "paged". This is done by flashing urgent messages on a larger number of screens, or all screens, until the subscriber responds to the VMS 10. If the caller has chosen to wait and is still on the system, then a connection can be made through the VMS thereby completing the call; alternatively, if the caller has rung off having left a message in the VMS 10, that message can be retrieved. A message can be designated urgent in a number of

different ways. For example, the caller or subscriber may input a particular "urgency" identification code which will then place the system into urgent mode; alternatively, the caller may be asked by the VMS 10 whether the call is urgent whereupon the caller's reply will determine whether the system is in urgent mode.

The system may include the facility to allow a subscriber to "log" into a new area so that any message alerts are transferred from his normal screen to the screen nearest his current position. Thus notification of message deposit can reach the subscriber at the most convenient position.

The VMS 10 can be a standard system as long as the following functions are provided for operation according to the preferred embodiment. The VMS 10 should include automatic call handling with voice announcements and message taking; the system should be capable of DTMF/PULSE or speaker independent recognition (SIR) interaction; the VMS 10 should include the ability to connect two callers, if the facility for direct connection of caller and called party is required, rather than just message deposit. Also, for more flexible operation, the system should include means to determine the phone that the subscriber or caller is using, for example calling line identification (CLI) if available. In the case of the subscriber, this allows the system to direct further messages to the appropriate screen, not necessarily that subscriber's normally-designated screen. The VMS 10 should also be connectable to the inserter controller 14 in the form of a host computer by means of a local area network (LAN) or an RS 232 interface.

Figure 2 shows schematically the inserter controller 14 in more detail. The inserter controller 14 is used to generate the screens to be displayed for the teletext inserter 16 to convert into UHF teletext signals in page form. The inserter controller 14 includes a telephone number/page number random access memory (RAM) 30 which constitutes a database linking subscribers' telephone numbers with their nearest television receivers. Thus when a message deposit alert signal is received from the VMS 10, the RAM 30 will be operable to direct the alert signal on the required page number and hence to the appropriate television receiver (or group). The inserter controller 14 also includes a text memory 32 for composing messages to be displayed in

response to the subscriber telephone number information from the VMS 10, such as the name of the subscriber for whom a message has been left. Preferably, an urgent mode override circuit 34 is included so that, in response to an urgency signal from the VMS 10, the alert message is sent to a larger number of television receivers, or even to all receivers, by appearing on the appropriate pages. Also, if the particular facility is required, a reprogramming circuit 36 can be included to allow the RAM 30 to be reprogrammed in the event of a subscriber moving location and wishing his messages to be transferred to the new location. This can be done by telephoning the transfer details using suitable codes to the VMS 10 which then passes on this information to the inserter controller 14. If CLI is available on the system, this may obviate the need for the subscriber to enter his new telephone number since this information will be provided automatically. Although the inserter controller 14 is shown in block circuit form, it will generally be in the form of a suitably-programmed host computer typically connected to the VMS 10 by a LAN or RS 232 interface, and to the teletext inserter 16 by an RS 232 interface.

The teletext receivers 20 can be used to provide other information which may be required depending on the use of the system. In that case, the system should have the ability to override whatever page of general information is being shown, upon receipt of a message deposit alert, and replace this with the alert message.

Although the preferred embodiment of the invention has been described in the context of voice mail systems, it is equally applicable to other message deposit systems such as video mail, fax mail or E-mail systems. In such systems, there will not necessarily be voice communication with the message depositor; all that is required is that some indication should be provided in the incoming message of the subscriber for whom the message is intended, so that a suitable message alert can be sent to the appropriate television receiver (or group).

As well as application in office and/or factory premises, the alerting technique can also be used in large public areas such as conferences and shows, public buildings such as libraries, academic establishments such as universities and their halls of residence, and other similar applications.

CLAIMS

1. A message deposit alerting apparatus for a messaging system, the apparatus comprising:

control means for receiving from the messaging system an indication that a message has been deposited for a particular one of a number of subscribers to the system; and

means for directing a teletext signal to a particular one or particular group of teletext receivers in response to the control means, the particular teletext receiver or group of receivers being selected on the basis of preprogrammed information in the control means associating subscribers with corresponding teletext receivers or groups thereof, whereby a subscriber can be alerted to the presence of a message deposited in the messaging system by means of the subscriber's associated teletext receiver or group of receivers.

2. Apparatus according to claim 1, wherein the control means includes a store associating telephone numbers of the subscribers with respective teletext pages to which the teletext receivers are correspondingly set, such that when a message is deposited for a particular subscriber, the alert is provided on the associated teletext page.

3. Apparatus according to claim 1 or claim 2, wherein the control means is responsive to an urgency signal from the messaging system to direct an alert to a larger number of the teletext receivers than for a normal message deposit alert.

4. Apparatus according to claim 3, wherein, in response to the urgency signal, the control means is operable to direct an alert to all of the teletext receivers.

5. Apparatus according to any one of the preceding claims, wherein a subscriber is capable of altering the preprogrammed information in the control means so that teletext signals for alerting that subscriber can be redirected to another teletext receiver or group of receivers.

6. Apparatus according to claim 5, wherein the preprogrammed information in the control means can be altered by a telephone call to the messaging system, the telephone call including a number identifying the subscriber and the redirected telephone number of the subscriber.

7. Apparatus according to claim 6, wherein the redirected telephone number of the subscriber is provided by a calling line identification signal from the redirected telephone.

8. Apparatus according to any one of the preceding claims, wherein the control means is operable, in response to information provided by the messaging system, to cause the teletext signal directing means to send further information to the particular teletext receiver or group, the further information including at least one of: the number of messages; the message length; the date and/or time of message deposit; and the identity of the caller.

9. In combination, a voice-mail system and a message deposit alerting apparatus according to any one of the preceding claims, wherein the voice-mail system includes means for holding an incoming call, and means for connecting the held incoming call to the intended subscriber upon the subscriber having been alerted on an associated teletext receiver and having called into the system.

10. A message deposit alerting apparatus substantially as hereinbefore described with reference to Figure 1 or Figures 1 and 2 of the accompanying drawings.

11. In combination, a messaging system and a message deposit alerting apparatus according to claim 10.

Patents Act 1977 Examiner's report to the Comptroller under Section 17 (The Search report) 8	Application number GB 9421706.4
Relevant Technical Fields (i) UK Cl (Ed.N) H4K (KF50A, KF50B, KF50C, KF50X) (ii) Int Cl (Ed.6) H04M 3/50	Search Examiner MR J P COULES Date of completion of Search 12 JANUARY 1995
Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii) ONLINE: WPI	Documents considered relevant following a search in respect of Claims :- 1 TO 11

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X	WO 93/20654 A1 (JENSEN) "Control signals" in abstract and claims	1

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).